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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/659,210

09/09/2003

Joseph C. Fjelstad

SIPI.P108

5685

66842 7590 05/15/2007

RONALD R. SHEA
6244 ROYAL OAK COURT
SAN JOSE, CA 95123

EXAMINER

SEMENENKO, YURIY

ART UNIT

PAPER NUMBER

2841

MAIL DATE

DELIVERY MODE

05/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/659,210	Applicant(s) FJELSTAD ET AL.	
	Examiner Yuriy Semenenko	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-29 and 84-98 is/are pending in the application.
- 4a) Of the above claim(s) 3-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 84-98 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/12/2007 has been entered.

Response to Amendment

2. Amendment filed on 02/12/2007 has been entered.
In response to the Office Action dated 08/12/ 2006, Applicants have amended claims 1, 84, 86, 93 and 98.
Claims 2 has been cancelled.
Claims 3-29 had been withdrawn from consideration.
Claims 1, 3-29 and 84-98 are now pending in the application.

Claims

3. Claims 1, 84, 86 and 93 amendments, filed on 02/12/2007 are considered and acknowledged. The claims amendments are approved.

Response to Arguments

4. Applicant's arguments filed 06/08/2006 have been considered but they are not persuasive.

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4.1. Applicant's arguments with respect to dependent claims 85, 87, 88 are considered and acknowledged but they are not persuasive

Applicant points out that both claims 84 and 85 are in proper "Markush" format "selected from among a group consisting of A, B, and C." and "...submits that the use of consecutive Markush claims depending from each other, as found in claims 84 and 85, produces a "diminished scope,"". However MPEP 2173.05(h), 3rd Paragraph teaches "The use of Markush claims of diminishing scope should not, in itself, be considered a sufficient basis for objection to or rejection of claims. However, if such a practice renders the claims indefinite or if it results in undue multiplicity, an appropriate rejection should be made." (underline added). Assuming that the Examiner elects single conductor cables from claim 84, then the Examiner could not work with claim 85.

4.2. Applicant's arguments with respect to independent claim 1 are considered and acknowledged but they are not persuasive. Applicant discloses in respect to claim 1 (pages 13 –15) "[b]ecause Plonski does not teach a conductive via, it does not teach all the elements claim one, and therefore cannot establish a prima facie, case for obviousness. Moreover, because Plonski specifies un-metallized holes, and claim 1 recites conductive vias, Plonski is teaching away from claim one." However, not Plonski but APA clearly teaches first 111A and second 111B conductive vias extending from the first surface to the second surface of the substrate 101 (Specification, page 2, [0004]). Plonski's reference is applied only to show that an electronic cable being inserted into the first end of the first through-hole; and the second end of the electronic cable being inserted into the first end of the second via, which Plonski clearly teaches in Fig. 2: a first electronic cable 212 inserted into the first through-hole (close to 205, column 4, lines 9-11) of the substrate 201. In response to applicant's arguments with respect to claim 1 against the references individually, Applicant cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Moreover, Plonski is not teaching away from claim one, but teaching another way to electrically connect coaxial conductor to the circuit board.

Claim Objections

5.1. Claim 98 is objected to for improper antecedent.

Claims recite the limitation "the daughter board". There is not such limitation in claim 95.

There is insufficient antecedent basis for this limitation in claims.

Appropriate correction is required.

5.2. Claim 87 is objected to for improper antecedent.

Claims recite the limitation "first and second conductors". It should be change to "a first and a second conductors", for proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the fourth paragraph of 35 U.S.C. 112:

Subject to the following paragraph, a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

As to claim 85: Claim 85 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 85 refers to claim 84. Claim 84 teaches that the first electronic cable not necessarily is a dual conductor cable. It means that dependent claim 85 (which includes only a dual conductor cable but does not include first electronic cable) does not include every limitation of the claim 84.

Claims 87 and 88 depend on claim 85 and have same deficiency.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7.1. Claims 1, 84, 86, 89-98 are rejected under 35U.S.C. 103(a) as being unpatentable over Admitted by Applicant Prior Art, hereinafter APA in view of Plonski (Patent # 4679321) hereinafter Plonski and in view of Snyder et al. (Patent #5046966) hereinafter Snyder.

As to claim 1: APA discloses in Fig. 1 (Specification, page 1) an assembly for conducting an electronic signal 100, the assembly comprising: a substrate 101 having first and second surfaces; first 111A and second 111B through-holes within the substrate, each through-hole having a first opening at the first surface and a second opening at the second surfaces; a first conductive element (conductive wall of the first through-hole 111A) disposed within the first through-hole and extending from the first surface to the second surface to form a first conductive via having first and second

ends; a second conductive element (conductive wall of the second through-hole 111B) within the second through-hole and extending from the first surface to the second surface to form a second conductive via having first and second ends,

except, APA doesn't explicitly teach two things:

1. an electronic cable having a first end and a second end, the first end of the electronic cable being inserted into the first end of the first via; and the second end of the electronic cable being inserted into the first end of the second via.
2. the first end of the electronic cable being in electrical contact with the first conductive via, and the second end of the electronic cable being in electrical contact with the second conductive via.

Plonski discloses in Fig. 2 an electronic cable 212 having a first end and a second end, the first end of the electronic cable being inserted into the first end of the first via (close to 205, column 4, lines 9-11) of the substrate 201; and the second end of the electronic cable 212 being inserted into the first end of the second via (close to 202).

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for APA to include in his invention that an electronic cable having a first end and a second end, the first end of the electronic cable being inserted into the first end of the first via; and the second end of the electronic cable being inserted into the first end of the second via in order to provide preferred medium for high speed signals, as taught by Plonski (column 1, lines 23-27).

Snyder discloses in Fig. 1 the first end 31' of the electronic cable 11 being in electrical contact with the first conductive via 17 (column 3, lines 6-11).

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for APA to include in his invention that the electronic cable being in electrical contact with the first conductive via to provide electrical connection with motherboard.

As to claim 84: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 1,

except , APA doesn't explicitly teach the electronic cable is selected from among a group of cables consisting of single conductor cables and dual-conductor cables, and combinations thereof.

Plonski discloses in Fig. 1B the electronic cable 110 is of single conductor 116 cables.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for APA to include in his invention that the first electronic cable is selected from among a group of cables consisting of single conductor cables and dual-conductor cables, and combinations thereof in order to provide preferred medium for high speed signals, as taught by Plonski (column 1, lines 23-27).

As to claim 86: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 1,

except , APA doesn't explicitly teach the first end of the electronic cable is electrically coupled to the first via proximate the first opening of the first through-hole to mitigate signal reflection.

Snyder discloses in Fig. 1 the first end 31 of the first electronic cable 11 is electrically coupled to the first via 17 proximate the first opening of the first through-hole to mitigate signal reflection.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for APA to include in his invention that the first end of the first electronic cable is electrically coupled to the first via proximate the first opening of the first through-hole to mitigate signal reflection to provide densely packaged electrical connection, as taught by Snyder (column 1, lines 60-65).

As to claim 89: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 1, wherein the substrate 101, Fig. 1 comprises a plurality of layers (Specification , page 2, [0004]).

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As to claim 90: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 1, herein the substrate comprises at least one conductive, 113, Fig. 1, (Specification , page 2, [0004]).

As to claims 91 and 92: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 90,

except , APA doesn't explicitly teach said at least one conductive trace includes a conductive trace coupled to ground potential or to source voltage.

Snyder discloses in Fig. 1 said at least one conductive trace 15 includes a conductive trace coupled to ground potential (column 3, lines 51-59) or to source voltage (column 3, lines 21-29).

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for APA to include in his invention that said at least one conductive trace includes a conductive trace coupled to ground potential or to source voltage to provide proper electrical grounding for cables, as taught by Snyder (column 6, lines 5-9).

As to claim 93: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 1,

except, APA doesn't explicitly teach the first end of the electronic cable is secured within the first conductive via by a securing engagement selected from among a plurality of securing engagements consisting of solder, press fitted ends, frictionally secured ends, retaining hardware, and combinations thereof.

Snyder discloses in Fig. 1 the first cable end 31 is secured within the first conductive via 17 by a securing engagement is pin 31' – socket member 51 (column 5, lines 15-29)

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for APA to include in his invention that the first end of the electronic cable is secured within the first conductive via by a securing engagement selected from among a plurality of securing engagements consisting of solder, press

fitted ends, frictionally secured ends, retaining hardware, and combinations thereof in order to provide robust electrical connection.

As to claim 94: APA discloses in Fig. 1 (Specification, page 1) an assembly 100 comprising: a substrate 101 having first and second surfaces; first 111A and second 111B through-holes within the substrate, each through-hole having a first opening at the first surface and a second opening at the second surface; a first conductive element (conductive wall of the first through-hole 111A) disposed within the first through-hole and extending from the first surface to the second surface to form a first conductive via; a second conductive element (conductive wall of the first through-hole 111B) within the second through-hole and extending from the first surface to the second surface to form a second conductive via; a first electronic member 103A coupled to the first conductive via ; and a second electronic member 103B coupled to the second electronic via,

except , APA doesn't explicitly teach two things:

1. an electronic cable having a first and second ends, the first end of the electronic cable being inserted into the first end of the first through-hole and the second end of the electronic cable inserted into the first end of the second through-hole; and
2. the first end of the electronic cable being in electrical contact with the first conductive via, the second end of the electronic cable being in electrical contact with the second conductive via.

Plonski discloses in Fig. 2 an electronic cable 212 having a first and second ends, the first end of the electronic cable being inserted into the first end of the first through-hole (close to 205, column 4, lines 9-11) and the second end of the electronic cable 212 inserted into the first end of the second through-hole(close to 216) of the substrate 201.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for APA to include in his invention that an electronic cable having a first and second ends, the first end of the electronic cable being inserted into the first end of the first through-hole and the second end of the electronic cable inserted

into the first end of the second through-hole, in order to provide preferred medium for high speed signals, as taught by Plonski (column 1, lines 23-27).

Snyder discloses in Fig. 1 the end 31' of the electronic cable 11 being in electrical contact with the conductive via 17 (column 3, lines 6-11).

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for APA to include in his invention that the first end of the electronic cable being in electrical contact with the first conductive via, the second end of the electronic cable being in electrical contact with the second conductive via to provide electrical connection with motherboard.

As to claim 95: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 1, wherein the first electronic member 103A, Fig. 1 comprises a first daughter board 119 having a conductive path conductively coupled to the first conductive via 111A.

As to claim 96: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 95 further comprising a conductive pin 123, Fig. 1 having first and second ends, the first end of the conductive pin sized to fit into the second end of the first through-hole 111A, and configured to electrically engage the first conductive via, and the second end of the pin conductively coupled to the first conductive path, Fig. 1 and Specification, page 1, [0004].

As to claim 97: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 96, wherein the daughter board 103A, Fig. 1 further comprises a conductive engagement member 105 for mechanically and electrically coupling the first conductive path to the conductive pin 123, the conductive engagement member 105 having a distal end coupled to the first conductive path, and a proximal end having a mechanical capture 121 to releasably engage to the second end of the conductive pin 123.

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As to claim 98: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 95, further comprising an edge connector 105, Fig. 1 and Specification, page 2, [0004] with parallel first and second sides, the edge connector being secured to the substrate, wherein the daughter board 119 is fixably secured between the parallel first and second sides of the edge connector 105.

7.2. Claims 85, 87 and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA in view of Plonski and in view of Snyder Snyder, as applied to claim 84 above, and further in view of Kuczynski (Patent #6218621) hereinafter Kuczynski.

As to claims 85, 87 and 88: APA as modified, discloses the assembly having all of the claimed features as discussed above with respect claim 84,

except, APA doesn't explicitly teach a dual conductor cable is selected from among a group of dual-conductor cables consisting of twin-axial cables, coaxial cables, twisted pair cables, and combinations thereof, and wherein the dual conductor cable comprises first and second conductors that are equal in length from respective first ends to respective second ends, and wherein the first ends of the first and second conductors of the dual conductor cable are cut perpendicular to their respective lengths.

Kuczynski discloses in Fig. 1 a dual conductor cable is selected from among a group of dual-conductor cables consisting of twin-axial cables, coaxial cables, twisted pair cables, and combinations thereof (column 4, lines 35-44), and wherein the dual conductor cable comprises first and second conductors that are equal in length from respective first ends to respective second ends, Fig. 2, and wherein the first ends of the first and second conductors of the dual conductor cable are cut perpendicular to their respective lengths, fig. 2.

Therefore it would have been obvious to one of ordinary skill in the art, at time the invention was made, for APA to include in his invention that a dual conductor cable is selected from among a group of dual-conductor cables consisting of twin-axial

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cables, coaxial cables, twisted pair cables, and combinations thereof, and wherein the dual conductor cable comprises first and second conductors that are equal in length from respective first ends to respective second ends, and wherein the first ends of the first and second conductors of the dual conductor cable are cut perpendicular to their respective lengths.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuriy Semenenko whose telephone number is (571) 272-6106. The examiner can normally be reached on 8:30am - 5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean A. Reichard can be reached on (571)- 272-2800 ext. 31. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

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